



## PREVENTION AND REHABILITATION: EDITORIAL

## The deficit reverse lunge



## 1. Introduction

Coaches and therapists seeking to customize training to the individual need a broad repertoire of movements on which they can then build proper progress. This does not mean anyone should go looking to invent new forms of exercise – there is nothing new out there. Instead, the goal should be to become exceptional at the basics. As Bruce Lee said, “I fear not the man who has practiced 10,000 kicks once, but I fear the man who has practiced one kick 10,000 times.”

To do this, we must begin with our most basic fundamental movements – whether running, jumping, pulling, or lunging -

and continually challenge them with the aim of rendering the patient or athlete strong and efficient in multiple planes of motion, bilaterally, and unilaterally. As mentioned in our previous article, “Strength Matters,” we should always look to maximize the training time by picking movements that provide a high yield at a low risk (Duncan and Liebenson, 2018), because this epitomizes value.

With this in mind, the deficit reverse lunge will be described in this article as a benchmark exercise. It can be used to establish a baseline of functional integrity from which an individual's regression or progression can be identified.

The reason why the lunge is so functionally pertinent is that it exemplifies walking, running, stair climbing, balance, and change

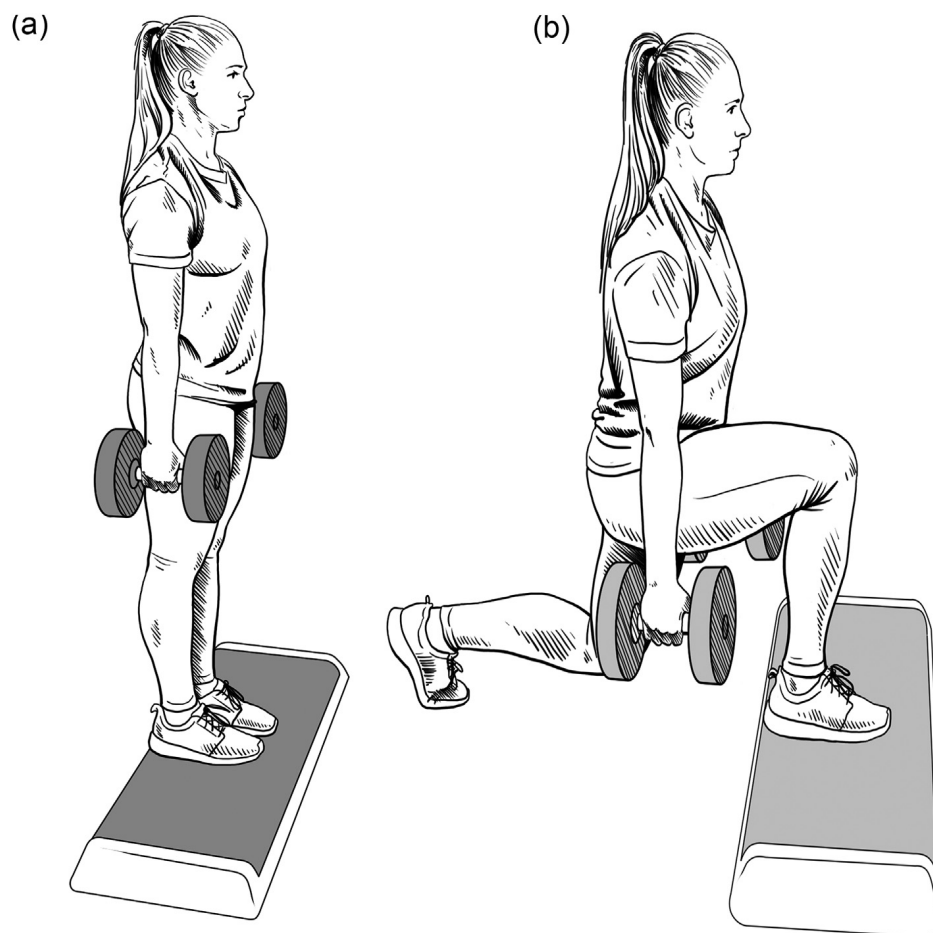


Fig. 1. The deficit reverse lunge with weight.



Fig. 2. The deficit reverse lunge without weights.

of direction in sport (ie. agility). It is a simple unilateral leg exercise with tremendous benefit and potential variability. The **deficit reverse lunge** is a progression of the traditional reverse lunge and is one of the most well-tolerated and challenging single leg movements.

Because the reverse lunge loads through the hip, it is a more knee-friendly option than the traditional forward lunge. In a coaching environment, this opens up the potential to load and stress it more — leading to more impactful adaptations. In a rehabilitation setting, it is more often than not the low hanging fruit for functional or transferable training, but it is often ignored in favor of recumbent, less functional exercises such as a glute bridge or clam shell.

The addition of the step to the movement allows the subject to reach deeper hip flexion during the lunge, improving and challenging hip mobility while also recruiting more from the gluteals (see Fig. 1a and b). This makes the deficit reverse lunge a more

posterior dominant lunge variation that tackles strength, mobility, and stability.

The overall effects of this movement can be influenced depending on how it is loaded or challenged. It can be used as a primary strength movement or even in rehabilitation. A simple regression is to perform it without weights (Fig. 2) or by using a TRX or ring type assisted device to provide balance support (Fig. 3a and b). A simple progression of this basic exercise is to start on one leg instead of both.

Below we have outlined additional ways to load, progress, and regress this movement.

### 1.1. The Counter-Balance deficit reverse lunge

This movement features the use of a Medball (Fig. 4a and b), light weight, or no load as the arms reach forward during the lunge portion of the movement. This encourages more activity from the anterior abdominals to improve balance and stability. This is a useful variation to introduce the movement as it reinforces proper upper body mechanics with a low enough load that the movement pattern develops smoothly.

### 1.2. The Contralateral deficit reverse lunge

The positioning of the dumbbell can influence the recruitment and execution of the movement. The contralateral deficit reverse lunge features a single dumbbell in the opposite hand to the leg that is being worked. For example, if the dumbbell was in the right hand, the subject would step back with the right leg, thus loading the left (Fig. 5a and b).

The offset nature of the load requires more stabilization from the external obliques and hip complex (particularly gluteus medius), thus enhancing strength and stability. This makes it a useful tool as an accessory or rehabilitation movement.

### 1.3. The deficit reverse lunge to roman dead lift (RDL)

The deficit reverse lunge to RDL is an advanced progression of the original movement as it combines two challenging, single leg movements in one. This is a later stage progression that can work well for patients who have demonstrated full competency of both movements involved.

Bilateral (dumbbells in each hand) or contralateral (one hand) loading can be used here. This author prefers the off-set loading, however bilateral loading with weights, Medballs, and so forth

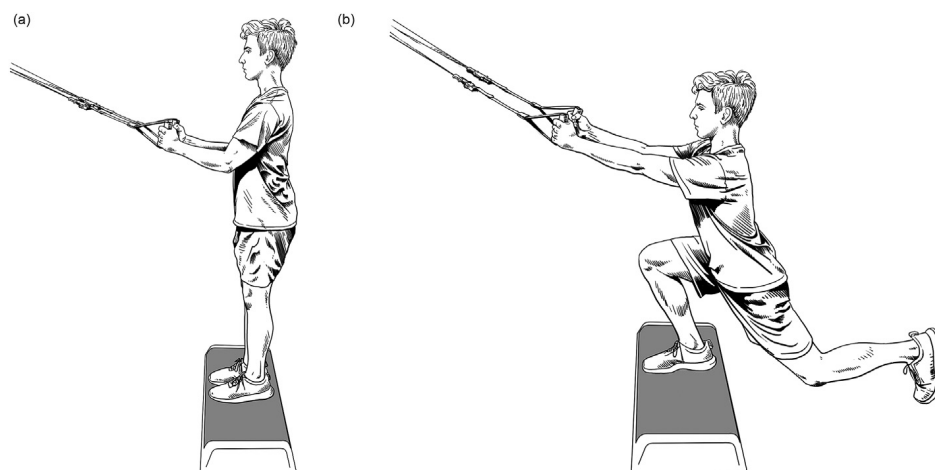
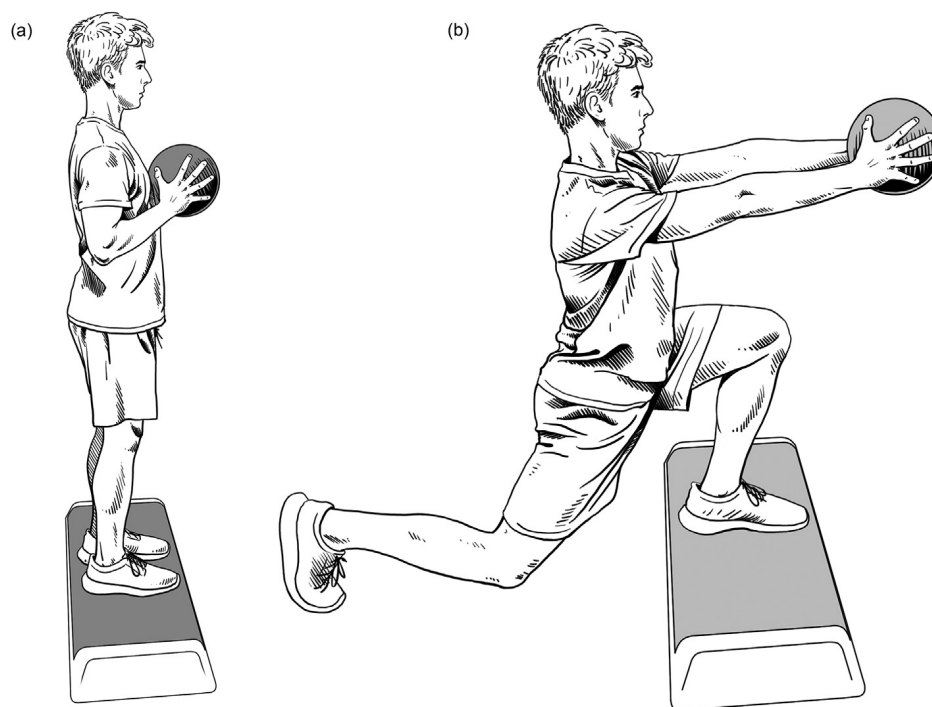
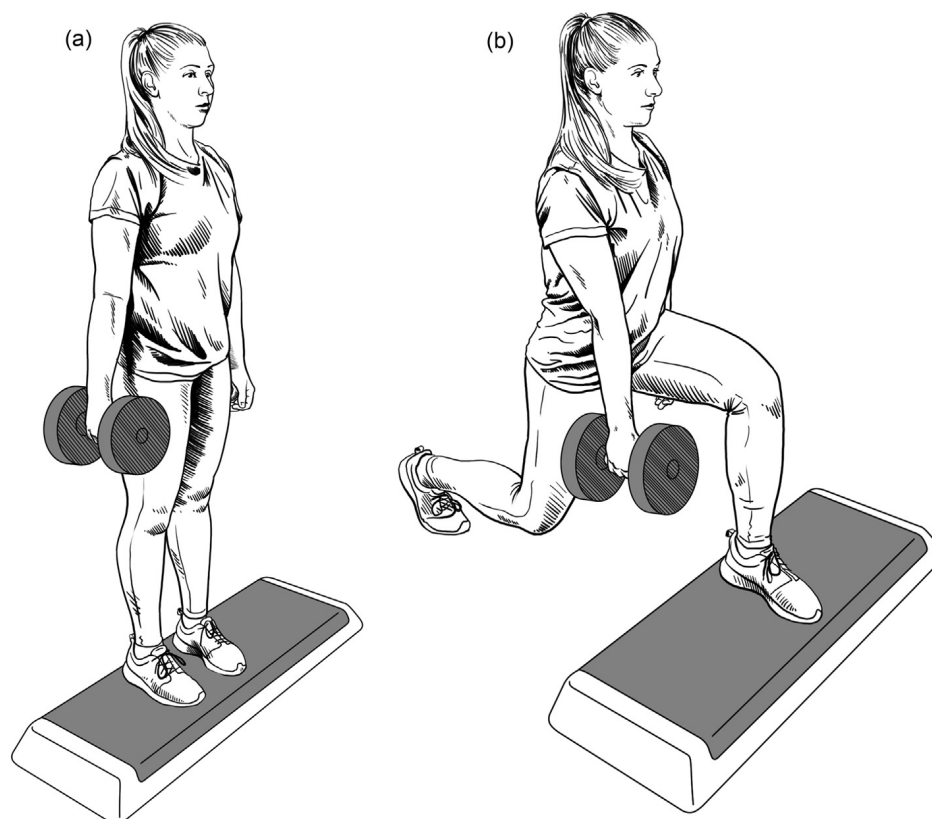


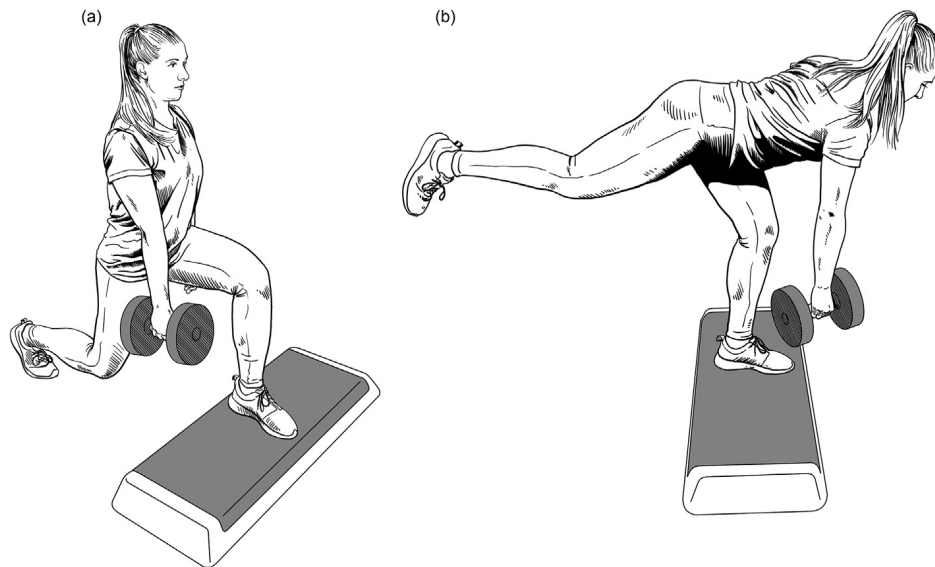
Fig. 3. The assisted deficit reverse lunge with TRX



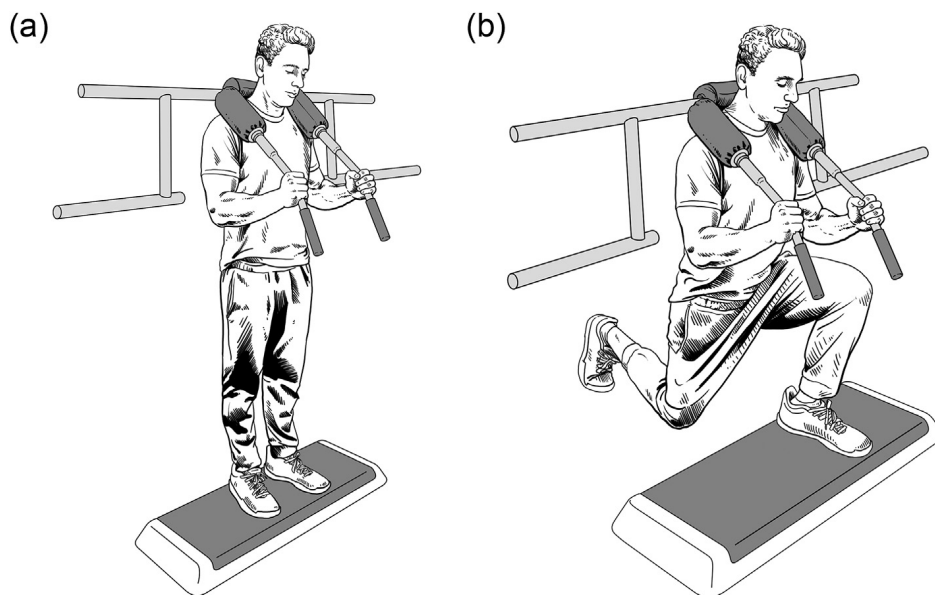
**Fig. 4.** The Counter-balance deficit reverse lunge.



**Fig. 5.** The contralateral deficit reverse lunge.



**Fig. 6.** The deficit reverse lunge to RDL



**Fig. 7.** Deficit reverse lunge safety squat bar.

can all be used. The technique requires the patient to lunge back off the step, and as they come back up they transition into a single leg RDL on the same leg that was loaded during the lunge (Fig. 6a and b).

#### 1.4. Deficit reverse lunge safety squat bar

The deficit reverse lunge with the safety squat bar is the final progression this author recommends with this movement (Fig. 7a and b). This can be hands-free or hands-assisted, depending on the goals (stability vs. strength dominant). Because of the load distribution of the safety squat bar, there is an increased demand on the abdominal and lower back musculature. An alternative could

be using a weight vest.

#### Coaching Tips:

- Begin with both feet on top of the box or step
- Step back and lunge down into a comfortable range of motion
- Keep a neutral spine with appropriate upper body posture
- Think about pushing up with the gluteals and extending through the hip
- Finish with both feet back on the box or step

## 2. Conclusion

The deficit reverse lunge can be thought of as a way to enhance

and promote physical stability by preventing disability from hip or knee problems often attributed to “arthritis”. Taken a step further, training the lunge pattern is an upstream measure to prevent falls in the elderly and boost overall robustness. The goal of remaining active requires a sustainable mindset and the deficit reverse lunge is an excellent exercise option.

Fred Duncan<sup>1</sup>, Craig Liebenson<sup>\*</sup>  
*Fred Duncan Performance Training, USA*

<sup>\*</sup> Corresponding author.  
E-mail addresses: [fredduncantraining@gmail.com](mailto:fredduncantraining@gmail.com) (F. Duncan),  
[craigliebensonc@gmail.com](mailto:craigliebensonc@gmail.com) (C. Liebenson).

## Reference

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Duncan, F., Liebenson, C., 2018. Strength Matters. *JBMT* 22 (3), 761–765.

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<sup>1</sup> 5445 Transit Rd., Williamsville, NY 14221.